JUNE 1947

FIREMEN

FIFTY-FIRST YEAR • NATIONAL FIRE PROTECTION ASSOCIATION

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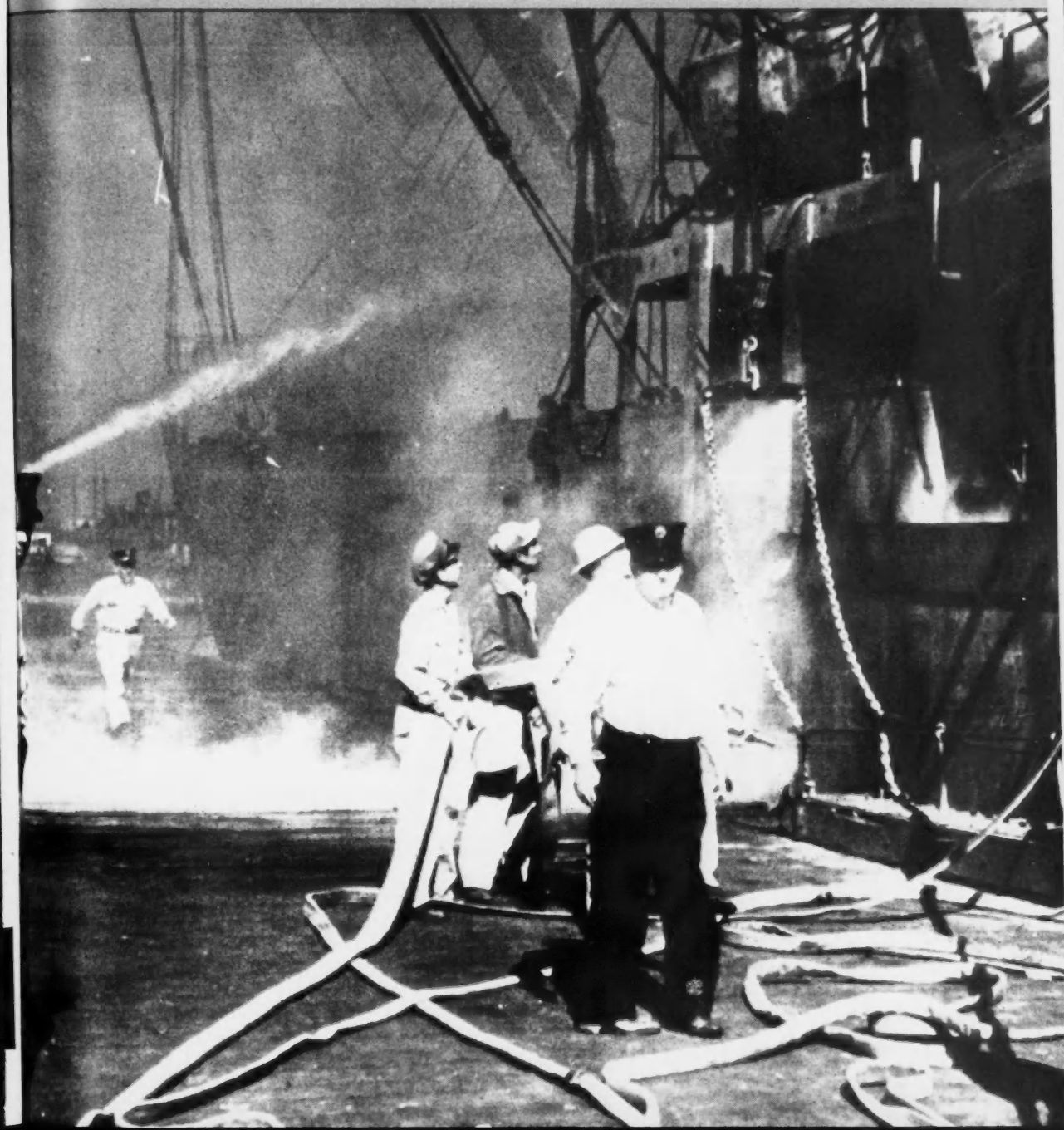

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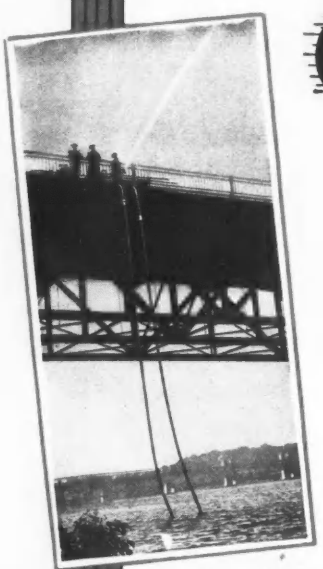

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CHIEF BRIDGES, KENT, WASH.

CITY OF KENT
WASHINGTON

May 14, 1946.

W. S. Darley & Co.
Chicago 12, Illinois

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Yours truly,

Chas. Bridges, Fire Chief.

W. S. DARLEY & CO.

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Firemen

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THE COVER PICTURE (*Press Association*) shows firemen of Texas City fighting the blaze aboard the freighter *Grandcamp* moments before an explosion devastated the waterfront, killing all but one member of that fire department along with hundreds of other persons. With the death of the Texas City firemen, virtually all organized resistance to the terrible flames that followed was negated. No mutual aid or disaster plans had been formulated for this hazardous industrial center containing the inherent fire and explosion hazards of chemical plants and oil refineries.

Several outside fire departments, hearing the explosion or learning about the disaster from news broadcasts, responded to render aid, even though apparently they received no official request from Texas City authorities. In general, the outside departments parked their apparatus in a school yard or other remote location and merely aided in the search for victims. Fires that might have been controlled readily by modern fire fighting methods were largely allowed to burn unimpeded. It was reported that a dentist was in charge of rescue operations and that armed guards were posted at road blocks.

Visiting fire authorities were appalled by the lack of coordinated fire fighting effort in the explosion area. The one or two pieces of apparatus used to take suction from the harbor were not efficiently utilized. The conclusion must be that the entire community was suffering from such a case of shock that, without advance emergency planning, coordinated fire fighting efforts could not be expected.

It almost can be considered a miracle that flames did not sweep through the wood-roofed blocks of dwellings in the shattered residential district, defenseless against flames after the destruction of the fire department and disruption of the water supplies. The blast occurred at a time when stoves were largely turned off after breakfast and in a mild climate where heating was not required at the time of year. With windows gone and residences badly damaged by the explosion, facilities were lacking to have stopped a conflagration, once underway.

This disaster again reaffirms the importance of a prompt alarm to the fire department *whenever* fire occurs. Despite the fact that the proper means of prompt control of burning ammonium nitrate is considered to be generous application of large hose streams, the firemen were not called until as a last resort. Employees at the dock and members of the crew frittered away valuable time with ill-advised attempts at extinguishment with steam and small streams. The fire department was only getting into action when the blast occurred. Thus, amateur attempts at fire fighting may be considered as a contributing factor in the more than 600 deaths and destruction of approximately $50,000,000 of industrial property.

It is doubtful whether even this price will bring home the lesson to the American people, as almost every American appears to be a "sidewalk chief" at heart and considers himself an expert at coping with a fire. Industrialists have been particularly guilty in their reluctance to call the public fire department, as well as their failure to inform the fire department of special hazards that may spread destruction beyond the borders of their plants. Perhaps enactment and enforcement of public liability laws where exposure losses result from failure to notify the fire department with reasonable promptness would provide one forceful corrective step.

IT MAY BE noted on page 10, under "Fire Equipment Economics," that caution is advised in the indiscriminate purchase of war substitute fire protection equipment now available as government surplus. Contrariwise, on page 22, is published advice from *Florida Firemen* urging efforts to obtain government surplus equipment that might be of value to the fire service.

The editors feel that both sides of this question have considerable merit. Fire departments should not expect war surplus equipment to have the reliability and give the performance of high-grade standard fire apparatus. However, there are many locations where some of this equipment may provide temporary auxiliaries to overworked and overaged standard apparatus until backlog orders for new apparatus can be filled by manufacturers.

U. S. FIRE LOSSES for April mounted to $68,029,000, according to figures released by the National Board of Fire Underwriters. This was an increase of 30.4 percent over the loss totaled for April 1946.

The April total included but a small portion of the Texas City loss figure, estimated between $35,000,000 and $50,000,000.

Losses for the year ending April 30 were $616,408,000, the highest ever totaled, as compared to $494,153,000 for the 12-month period ending April 30, 1946.

Acme

Air view of Texas City disaster scene shows Monsanto plant in foreground with arrow pointing to slip where the "Grandcamp" was berthed. The "High Flyer" was in the second slip. Oil tank farms in background were involved following the second explosion.

Texas City Disaster

by George H. Tryon, 3rd

A few hours after the explosion was reported, NFPA Engineer George H. Tryon was flying to Texas City. On-the-scene impressions gathered during the several days spent investigating the disaster amid still burning debris, add force to his report on this great tragedy.

TEXAS CITY will long be remembered as a scene of unparalleled tragedy, resulting in the death of *approximately* 600 persons and damage totaling perhaps *fifty* millions on April 16–17. The fire service has very particular reasons to remember the disaster which killed all but one of the local firemen and destroyed their four pieces of apparatus.

This is true, not only because the fires and explosions were of a magnitude which classes them among the worst in American history, but also because it is an obvious fact that great explosions like that which happened in Texas City could happen in the industrial area of almost any American city.

The significant facts of the Texas disaster, from the fire service viewpoint, may be reviewed as follows.

Fire preceded the two main explosions of ammonium nitrate on the S.S. *Grandcamp* and the S.S. *High Flyer*. The former, a Liberty ship, was found ablaze in No. 4 hold by longshoremen soon after 8 A.M., April 16, when they commenced the day's loading operations. Amateur attempts to extinguish the fire with small quantities of water failed and the crew ordered further application of water streams halted for fear of ruining the cargo. Steam was next attempted but failed to achieve any measure of control.

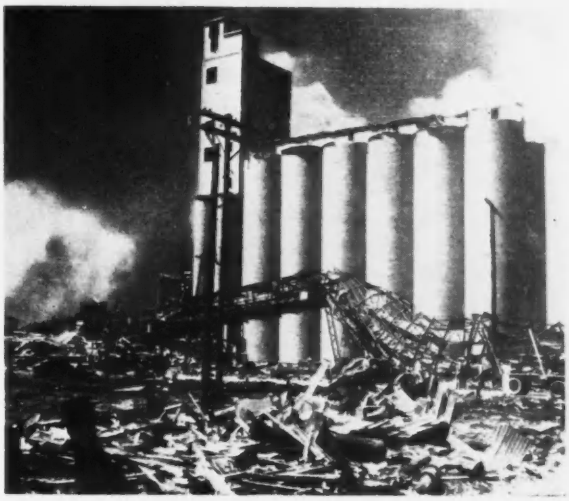
The Texas City Fire Department (volunteer except for a paid chief) responded to a belated telephone alarm and was using hose streams when the 9:13 A.M. explosion shattered the area, killed all but one of the twenty-seven firemen on duty, and utterly destroyed their four fire trucks.

The second explosion occurred aboard the *High Flyer* the following morning at about 1:15. This ship, located in a separate slip (see photo), was heavily involved in fire prior to the explosion. Original ignition was most probably the result of exposure. Fire was first detected aboard the vessel in mid-afternoon. No concerted attempt was made to control the flames, due primarily to the natural preoccupation of all disaster crews available in rescue operations.

The *High Flyer* was not towed into the bay, first, because debris blocked easy access, second, because of uncer-

NFPA Photos

Typical devastation of residential district which fortunately escaped conflagration following blasts.



Concrete grain elevator stands following explosion amid twisted debris of industrial properties.

tainty regarding its cargo (confused by thoughtless rumors), and, third, because the anchor was down and could not be taken up or cut during the intervening period.

Thus we have several familiar elements: delayed detection; attempts to fight an advanced fire without calling for professional help; delayed alarm; explosion following fire exposure to unstable chemical compounds; failure to eliminate hazardous exposures; and lack of a co-ordinated plan of attack.

The force of the blasts was unparalleled, considering the nature of the material, its fire exposure and its storage. Previous ammonium nitrate explosions had been under vastly different conditions, occurring where an initial detonating agent had been present or during the manufacturing processes where chemical stability had not been secured. Previous shipboard fires had not resulted in explosions.

The violence of the Texas City explosions may be attributed to the chain reaction initiated by the chemical decomposition of the nitrate, the presence of impurities, its density of stowage, the fine granular nature of the material (treated to prevent caking), the breakage of the paper bags permitting further contact with foreign material, and the delay in application of large capacity hose streams. Confinement of the cargo in the ship's hold presented an additional hazard to life and property as the explosions shattered the vessels so totally that no portion remained visible above the water level. Flying metal weighing many tons and piercing fragments resembling shrapnel fell throughout the area, killing and maiming, piercing structures, oil tanks, and automobiles.

New chemical products, or new methods of handling familiar products, must be continually studied to analyze their fire and explosion hazards. Every unparalleled incident demands that preventive measures and protective standards found inadequate be revised to forestall repetition.

Ordinary evaluations of "area subject to one fire" were made inapplicable by the explosion which started numerous fires in an area approximately one-half mile in radius (land side). While at the core of the property involved, occupied by the Texas City Terminal Railway Company, fire underwriters had estimated the maximum property valuation subject to a single fire was 20 percent. The blast produced a situation which not only violated this reasoned estimate but also instantaneously involved the neighboring Monsanto plant and the oil tank farms of six refineries.

The magnitude of the fires was thus beyond previous conception. With the heavy loss of life, the wrecking of fire

A Coast Guard vessel fights flames on Texas City waterfront.

Press Association

Crane moves twisted debris of refinery structures to facilitate search for victims.

Acme

NFPA Photos

Refinery storage tanks blaze, unhampered by fire fighters, on day following explosion.

Refinery foam pump house showing unused cans of foam, chemicals, and mixing proportioner.

trucks and fire fighting facilities, and the natural confusion produced by the catastrophe, attempts to secure a measure of fire control were hopelessly delayed. Greater segregation of industrial values could and should have been provided, especially as regards the Monsanto property which was seriously subject to a major explosion or fire from the terminal. Obviously, however, most fire protection engineers would have viewed the danger as being *from* the Monsanto plant instead of vice versa.

The potential limits of explosion damage and its effect upon fire spread require separate analysis. Like the Los Angeles explosion of February 20. (See "Firemen" April 1947) population concentrations exposed by industrial properties subject to possible explosion hazards present added dangers of large loss of life.

While private fire protection was relatively ample, the blast made it useless. The protection included a fair water supply system with good yard hydrants and underground fire mains, plus sprinklers in six buildings in the terminal area, a good private protection system in the Monsanto plant (including private water supply, sprinklers and special extinguishing systems in critical structures, and a private organized fire department) and some good foam protection systems in the oil tank farms.

All this was of little value, as disruption of the water supply systems at the pump stations was an immediate result of the first explosion. While the elevated tanks and reservoirs withstood the impact forces of the explosions, damage to the pump house, although of fire-resistive construction, was practically total. Thus, had fire fighting activity been attempted immediately following the first blast, water supplies would, of necessity, have had to have been secured from draft. Such action was taken during the day following the second explosion and continued for the next several days under the overall direction of Chief Roy Whittlesey, of the Houston Fire Department.

Total dependence on established fire protection systems in explosion hazardous areas may be dangerous. Facilities for improvising fire defense minus ordinary essentials presents a challenge to the fire service.

The lack of either a Disaster Plan or prearranged mutual aid agreements was painfully evident. It should be borne in mind that the fires (although not the explosion damage) were confined to the industrial property on the bay. The Texas City Fire Department responded on call to the privately operated and managed port. When the explosion occurred and wiped out the local fire fighting personnel and facilities, there was no other automatic response. The Houston Fire Department, largest in the immediate vicinity (road distance, 50 miles), was never officially called. Their response was made on their own initiative, following insistent commercial radio reports of the magnitude of the disaster. Other nearby fire departments took similar action but no concerted effort toward fire suppression was achieved for at least 48 hours following the initial blast.

Whether fire control might have been achieved which would have prevented the second explosion is hypothetical at this point but it is reasonable to state that the attempt could have been made if the necessary prearrangements for mutual aid had been a reality. Martial law was not decreed although the opportunity to establish such control was extended to the mayor of Texas City. The wonderful examples of personal initiative and heroism which marked the early hours of rescue and salvage work lacked the necessary direction in many cases, an unfortunate fact which is as understandable under the circumstances as it is tragic.

Mutual aid presumes prearrangements for assistance in event of major catastrophe. Surely in this postwar era it is obligatory to make such provisions. A disaster plan is a corollary embracing other vitals of emergency services.

Even substantial construction was collapsed by the tremendous forces of the explosion. Perhaps the best illustration of the incredible explosive waves which immediately followed the two main blasts is found in the collapse of two fire-resistive, reinforced concrete piers. These buildings, one of which was two stories in height, were literally reduced to rubble. Only one section, approximately 300 feet long, remained standing of the 2-story, 120 x 1160-foot larger structure, while the 1-story pier, 155 x 880 feet, was totally compressed. The non-combustible pier structures were merely twisted masses of metal in which fire burned for days. The Monsanto plant buildings showed similar impact destruction. Brick-joisted walls failed in every observed case. Some structural steel withstood both explosion and fire damage where the amount of combustible material was not sufficient to cause heat warpage or where the beams were actually unencumbered by solid surfaces.

Superior construction normally provides maximum structural stability but it cannot be expected to withstand explosive blasts of major proportions where solids are changed to gases.

The chemistry of combustion again looms large on the horizon for the fire service. The commercial grade of am-

monium nitrate involved in the Texas City disaster is common. Prepared for use as a fertilizer, the normally colorless crystals had a brownish tinge indicating treatment to prevent caking while in storage. Positive knowledge of just what form this treatment took awaits discovery of the particular manufacturer who must be traced through the incoming shipping vouchers. It is probable that either a petroleum jelly or rosin had been employed.

Regardless of this feature, the chemical decomposition of ammonium nitrate under severe fire (heat) conditions would produce two or more of the following: (1) nitrogen, (2) oxygen, (3) nitric oxide, (4) nitrogen peroxide, (5) nitrogen trioxide, (6) gaseous nitric acid, and (7) water vapor and heat. The decomposition was with explosive violence when the heat reached the critical point, setting off a series of reactions accompanied by terrific expansion of molecular volumes as the solids changed to gases.

Obviously, the chemistry of fire cannot be reduced to simple formulas which would govern every potential. The field of chemistry and the nature of explosive reactions of chemical compounds requires years of guided study. Perhaps the most logical approach for members of the fire service is to keep abreast of those industrial activities within their protective zones which possess chemical significance and to anticipate the potential hazards which these activities embrace.

The most effective fire fighting technique for handling ammonium nitrate fires is to apply large quantities of water. Ammonium nitrate is highly soluble in water. The crew of the *Grandcamp* had this knowledge for they stopped longshoremen from using even small streams on the fertilizer for fear of ruining the cargo. Steam was wholly ineffective (as the recent *Phobos* tests by the U. S. Coast Guard have proved). Carbon dioxide, foam, and other extinguishing agents of the smothering type would also have been ineffective, as ammonium nitrate provides its own oxygen for combustion.

The hazard in applying water is small compared to the explosion potential of the heated compound. Water applied to a fire involving ammonium nitrate might cause minor explosions which would scatter burning materials due to the sudden formation of steam, but a barricade or suitable distance would reduce the life hazard to firemen substantially.

Every chemical must be analyzed not only as to its fire hazard but also as to the best method of fighting a fire which might involve this material. Fire suppression research is thus another field for continuing study by every fire department having industrial fire protection problems.

Knowledge in handling shipboard fires and in marine terminals operations is obligatory. At Texas City, the *Grandcamp* was disabled during loading operations and could not be moved into the bay, despite the obvious serious fire exposure to the pier. There were no tugs readily available to tow the vessel from the danger area. The *High Flyer* and a third vessel, the *Wilson B. Keene*, were similarly not withdrawn despite obvious hazard. The reasons why the *Flyer* was not moved have been previously explained and the *Keene* was inshore in the same slip as the former.

Had ammonium nitrate been considered a hazardous commodity perhaps the *Grandcamp* might not have been repaired during loading. A well managed terminal should not have permitted it. Since the fertilizer was not known to be hazardous (nor labeled in a manner to so indicate), no blame can be attached to the ship's operators. What marine facilities the Texas City Terminal Railway Company had for handling a ship fire while docked at their piers has not been positively determined, as the individual in charge was killed by the initial blast. From all appearances, however, there was a lack of adequate marine equipment for any such emergency. The only fireboat to be employed was a Coast Guard vessel from Galveston and this was not utilized during the critical hours.

Marine terminals have special hazards which require that particular attention be given to them. Land approach and pier-side fire fighting introduces special problems which might well be insurmountable, lacking co-ordinated marine facilities. Whether these operations are private or municipal, prearrangement for effective fire control must be made.

In summation, what happened in Texas City is a threat to you. What happened in Texas City is a challenge to you. They asked you to "Remember Pearl Harbor" and you did. We ask you to "remember Texas City" and act in the same positive manner to prevent a second such disaster.

Ruins of the Monsanto chemical company plant near which many of the fatalities occurred.

Air raids might not produce devastation comparable to the wreckage of Texas City industrial areas shown below.

Acme Photos

Fire Equipment Economics

Reprinted in part from "Forester Fire Protection Notes," February 1947, published by the Western Fire Equipment Company, San Francisco.

In the fire protection field, whether it be in the forest or the city, or in a rural area, the physical plant or equipment represents a relatively large investment which seldom remains static but increases as service is extended to other areas or protection effort is intensified. For budgeting purposes, two items are of major importance: one, the work or business load and, two, maintenance of the plant. It is at this point that the practical aspects of economy should enter the picture.

MAINTENANCE costs usually become fixed charges, the bugbear of every administrator. There comes a time in every expanding organization where, unless great care is exercised, the fixed charges for maintenance become so great that there is only one alternative to great appropriation — neglectful maintenance. Usually, the equipment is permitted to deteriorate.

There is no substitute for careful expenditure of funds nor is there a short cut to practical economy. You get what you pay for, no more, no less. Economy trends vary, depending on how they are set in motion, and sometimes they work in reverse. A low original cost for equipment which is to serve for many years might not result in high maintenance charges, but the chances are that it will.

Practical economics works out in strange ways. The Woodpecker Clubs of the Coolidge era recall a time when economy was carried to extremes. In order to get every bit of usefulness out of pencils costing eight cents a dozen, somebody decided to purchase thousands of pencil holders at fifteen cents each. This might appear to be an exception which occurs only when there is some confusion on matters of policy but such is not true. There are many equally exaggerated instances in every organization.

There is one method by which such can be held to a minimum: careful analysis of each expenditure with an eye to potential as well as cumulative values. If an item of equipment nominally should have had a service life of twenty years, and there are many such in the fire service, the quality level should be high enough so that, during the normal service period, maintenance expenditures will be negligible. Any other course is false economy.

On the other hand, if normal service life is short, quality and cost should be in balance. It should also be recognized that for such items it is uneconomical to maintain them beyond a certain period. Failure to adopt a policy which eliminates substandard equipment almost always is reflected in high maintenance cost and, in addition, various other losses which occur because of breakdown or other difficulty. Briefly, the matter is one of controlling expenditure to a reasonable percentage.

In the construction field there are many examples for which there are perfect parallels in the fire service, but there seems to be some reluctance to accept ideas which experience has shown to be essential to good management. Perhaps the answer lies in part in the method of financing. Original investment costs frequently are set up as special funds, while maintenance funds usually are covered in lump sum appropriations. In short, they come out of another pocket and do not appear as a direct charge against the equipment items. It would be quite easy to build up in a very few years maintenance and tangible loss totals which would far exceed the original cost of the equipment yet not have it appear on the record.

While the above suggests that constant checks are necessary to hold down non-productive work and expenditure, it is not intended to convey the idea that maintenance should not be a necessary part of routine activity. It is essential but there is a question of degree in every case. To plug what is usually a large leak for current funds requires careful study but it is a worthwhile project. It places the emphasis where it belongs and pays off in funds which can be used for more meritorious purposes than reconditioning.

For many years it has been common practice for some agencies to stretch funds in a manner which gives rise to speculation as to the purpose. It is generally accepted that the heart of a tank pumper is the pump, and next in importance the accessories such as nozzles and hose. It has been observed that for units of this type, which involve an expenditure of anywhere from $2,000 to $5,000, the items which usually suffer in an effort to economize are the principal working units, the pump and other accessories on which dependence is placed for successful performance. Tankers have been equipped with commercial grade rotary pumps lacking essential ball or roller bearing suspended rotors required by high pressure service simply because they were cheaper than a standard fire pump.

After approximately 50 hours of service, the commercial grade pump is so worn as to be useless and must be re-built. There have been occasions where failure to perform has proved costly. Also, equipment out of service for repairs is of no value. The questionable part of such an arrangement is that the pump cost is such a small percentage of the total investment. For a negligible savings in original cost, the agency assumes an unwarranted maintenance obligation which more than offsets the slight savings in original cost and, as part of the bargain, it accepts impaired pump performance.

In a highly competitive field, and fire equipment certainly is that, it is possible to buy something cheaper for every standard item manufactured. Judgment must be exercised in making decisions if the ultimate cost is to be held to a minimum without sacrifice of performance.

Companion to the above is the idea of using anything that will work. Since the termination of the war, a considerable quantity of surplus equipment has appeared on the market, much of it excellent and some not so good. Rural areas particularly have purchased heavily of such items without too much knowledge of what to expect. The subject has assumed such importance that leading journals have openly criticized the practice as representing short-sighted economy.

The equipment usually purchased, pumps, hose, and so forth, is of war manufacture and of poor quality. It cannot be expected to give dependable service and it will cost excessively in maintenance. The idea seems to prevail that the term fire pump or fire hose means first quality and that what is being purchased is equally as good as the standard items in use by well organized departments.

There are several ways of looking at the picture. One is that, even though

the equipment is substandard, fire protection benefits once having been established as a unit, the service will not be dispensed with, even though the major items of cost, such as pumper, and hose, must be replaced. Many volunteer groups have been equipped with old OCD pumpers, hose, and hand extinguishers. They serve a purpose as long as the equipment will perform, but somebody is in for a rude shock when it becomes necessary to make replacements. That day is not very far distant for most such items.

★ ★ ★

Volunteer Department Protects Clarinda, Iowa

CLARINDA, IOWA, population 6,000, believes it has one of the better volunteer fire departments in the state. The city, located in southwestern Iowa a few miles north of the Missouri line, has industrial plants making well drilling equipment, washing machines, lawn mowers; flour mills, seed houses, dairy products, and other industries.

The fire department (NFPA member), commanded by Chief Omer Willison, consists of eleven regular and four auxiliary firemen, according to Secretary C. C. Collins. There are two pumpers. No. 1 is a 500 gpm midship pump on an International chassis and No. 2 is a 350 gpm midship pump. Both carry 1200 feet of 2½-inch hose and 100 feet of 1½-inch hose equipped with fog nozzles. In addition, the No. 1 pumper has two booster tanks, each supplying a ¾-inch line equipped with fog nozzles. Driver Clark McComb has installed a rear end hook-up to permit quick connection of a 2½-inch supply line from a hydrant. The truck also carries four modern gas masks and a large carbon dioxide extinguisher which has been used successfully on oil and electrical fires.

A siren atop the fire station tower gives the alarm and firemen get the location from the telephone operator. The firemen are identified by numbers so that the telephone operator need not divulge the location to buffs or fire chasers. From seven in the evening until seven A.M. the operator calls the fire fighters in their homes because with windows closed in winter and radios in operation some of the members might not hear the siren. Last year the department answered a total of forty-nine alarms.

Secretary Collins commented on Clarinda's low fire loss for 1946, totalling $4,418.32. Three fires accounted for more than half the total.

Proceeds of the annual February firemen's ball in Clarinda will be contributed in part to the purchase of an iron lung for the benefit of the community.

Each May, members of the department attend the Iowa Fire School, one of the two oldest state fire schools in the United States.

"Who's Who" on the NFPA Staff

This is the second in a series of staff portraits of the guiding lights about the NFPA Executive Office at 60 Batterymarch St., Boston. These are the men who write and edit the books, magazines, posters, and pamphlets published under the insignia of the National Fire Protection Association. These are the men to whom you can turn for answers to your fire fighting, prevention, or protection problems.

ROBERT S. MOULTON, technical secretary, member of the NFPA staff since 1920, has staff responsibility for the organization and operation of the fifty-odd technical committees of the Association. He edits and handles the publication of committee reports and standards, including the five volumes of the National Fire Codes which are issued in revised edition every five years.

To Mr. Moulton's desk come countless inquiries from members on technical subjects which he handles on the basis of his long experience in fire protection engineering and his contacts with the technical committees, which make him familiar not only with the wording of the official standards but with the thinking of the committees which developed them. While most inquiries are readily answered, almost every day he has occasion to say, "I am supposed to know everything, but I don't." However, when he can't answer the question himself, he usually knows an expert in the particular subdivision of the field of fire protection to whom the inquiry can be referred.

Mr. Moulton is editor of the *Quarterly* of the NFPA, handles the preparation of the *News Letter*, is general editor of the NFPA *Handbook of Fire Protection* (Crosby-Fiske-Forster) and has various administrative responsibilities.

During World War II he was fire protection consultant to the War Production Board and active in an advisory capacity with various other U. S. government agencies concerned with fire matters.

Mr. Moulton has for years been promoting the recognition of fire protection engineering as an important profession, separate and distinct from other branches of engineering. While holding degrees from three colleges, he frequently expresses the opinion that a man does not have to be a college graduate to be a fire protection engineer and says that all that he knows about fire has been learned since he left school.

Wooden Shingles Are Still Burning

AS EXPERIENCED FIRE FIGHTERS know, wooden shingle roofs have contributed to more major conflagrations than any other single factor.

The fire pictured on this page destroyed a row of dwellings in Newport, Pa. These were among the oldest buildings in the community and an open attic extending over the entire block permitted ready sweep of the flames, despite the efforts of firemen from Millerstown, New Bloomfield, Liverpool, Duncannon, and Newport.

Several occupants barely escaped with their lives during the Sunday afternoon blaze which is believed to have started on the wooden shingle roof, shown burning intensely in the upper photograph. The damage was estimated in excess of $20,000.

Roadside Restaurants: a Fire Problem

Lynn Item

NOW THAT THE TOURIST SEASON is approaching full swing, every fire department should give attention to the possibility of serious major fires in roadside restaurants or taverns in their territory. During the past several years, a number of relatively large losses have occurred in fires involving roadside eating establishments.

These properties are located to catch the patronage of passing motorists. Often they are remote from fire hydrants or other satisfactory water supply. Where there are open bodies of water nearby that would permit pumper suction, arrangements have seldom been made for proper suction approaches or basins, possibly because the management of the roadside restaurants does not realize the seriousness of their fire problems.

Many of these fires occur during the early morning hours after the establishment has closed for the night. Flames make great headway before discovery, and by the time that the local fire department makes the long run to the scene, frequently the property is beyond saving.

Fires may be due to failure to detect smoldering cigarettes in booths before the property is closed; other fires have been caused by ignition of grease at the stove or in vent flues. Most of these structures are built with comparatively low roofs but with large attic areas into which the fire may communicate, particularly where the structures are built without adequate building code supervision and where an excessive amount of light combustible wallboard materials are used.

It would be a good fire prevention and training lesson for each fire department to inspect the roadside eating establishments in its territory. The fire department could make sure that simple fire prevention practices were being observed, check the location and condition of first aid fire appliances and ascertain what water supplies would be available for fire fighting. The department might also make tentative fire fighting plans based upon the construction and arrangement of the property. As some of these fires assume serious proportions and pumper relays may be needed, it is well to plan to have adequate fire department response, including mutual aid, as early as possible after an alarm is received.

Small Stream Equipment

THERE ARE MANY CASES where garden hose brigades have done effective work in coping with a rain of blazing embers from big fires, but the fire department cannot place chief dependance upon such assistance. Many conflagrations can be cited where the fire department was holding the main fire but flying brands turned the tide against the fire fighters. In cold weather at least, outside faucets are shut off and drained, garden hose is coiled and put away in basement, attic or shed, the nozzle is in a tool box. Also low water pressure at time of maximum demand may deprive garden hose of effectiveness.

It is not generally appreciated that motorization of fire departments with so-called combination apparatus deprived the average fire department of one of its important units. Prior to motor equipment each fire department maintained, in addition to engine companies with pumpers and hose wagons, an extensive coverage of chemical companies equipped with large chemical tanks and several lines of chemical hose. Frequently, such apparatus also carried a load of regular 2½-inch hose. Chemical companies were not only highly valued in combating residential fires, they were the skirmishers that patrolled for flying brands during major fires. With the beginning of motorization the combination hose

Continued on page 28

Tricks of the Trade

"Scotchlite"

Many firemen have been injured by being struck by traffic at night fires. The black fire clothes, particularly on a stormy night, may make the men almost invisible to motorists. Some fire departments have painted conspicuous stripes on the fire clothing.

A recent innovation adopted by William J. Sudeith, chief of the St. Paul, Minn., Bureau of Fire, has been to attach, with cement, a reflective fabric to all the fire coats. Chief Sudeith reports, "While firemen are picking up hose in the street, the minute the headlight of a car shines on this fabric, it reflects back to the driver with great brilliance. Also, while the men are working in dark alleys or in smoke, the minute you shine your flashlight upon the fabric, it has the same effect as headlights of a car."

The fabric Chief Sudeith is using is called "Scotchlite" and is manufactured in St. Paul. By using different shapes of the fabric, which is cut from rolls, Chief Sudeith can distinguish between laddermen, hose men, or squad company members. (See below.)

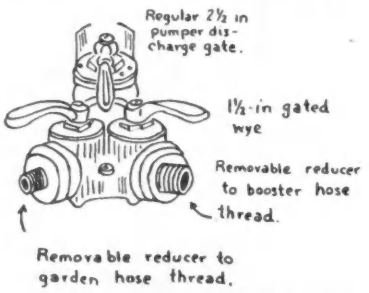
Other precautions which should be taken at night to prevent traffic accidents, include placing red reflector lenses in the street, the use of properly lighted police batons by the fire-police detail, and proper illumination of the fire ground with portable lighting equipment should not be overlooked.

Gated Outlet

It may be desired to have gated outlets provided at the side of the water tank on rural fire apparatus to permit filling of water tank extinguishers and other equipment or apparatus. Where provided, it is recommended that these outlets have a standard fire department booster thread.

Discharge Gate

The fire department of Weston, Mass., has the following discharge gate


Regular 2½ in pumper discharge gate.
1½-in gated wye
Removable reducer to booster hose thread.
Removable reducer to garden hose thread.

arrangement on one of its 500 gpm rural pumpers. A 1½-inch gated wye is attached to one of the regular 2½-inch pumper outlets. This permits use of two 1½-inch lines direct from the pump, if desired. However, each of the 1½-inch outlets is further reduced. One carries a reducer to booster hose thread and the other carries a reducer to garden hose thread. The apparatus carries three sizes of hose: 2½-inch, 1½-inch booster, and a reel with 1200 feet of small rubber forest fire hose.

The rural pumper is also equipped with radio and has extinguished as many as five grass and brush fires in an afternoon without returning to headquarters.

The Right Ladder at the Right Time

RECENTLY a news bulletin reported an incident where fire occurred in the eaves of a fire station in a large mid-western city. According to the account, firemen in this station required the help of a ladder company from a station more than a mile away because their pumper was not equipped with a ladder that would reach the eaves of their 2-story fire station.

Of course, it is good practice to have a ladder company respond to every building fire to perform truck duties such as forcible entry, ventilation, rescue, and salvage, even if long ladders are not required. Nevertheless, standard equipment on all pumper companies, with very few exceptions, includes an extension ladder and a roof ladder with folding hooks. In many departments, including those having good ladder company service, the ladders on the pumpers get a surprising amount of routine use. There are occasions when the nearest truck or ladder company is out of quarters, and other cases where a pumper company arrives several minutes before a ladder company and decides to use its own ladders to reach a porch roof, second-story window, or the eaves of the house.

NFPA specifications for municipal fire apparatus call for 24-foot extension ladders and 14-foot roof ladders on all pumpers. Standards for rural fire apparatus advise 30-foot extension ladders and 16-foot roof ladders in sections where ladder company service is lacking or may be delayed, but these may not be needed where all buildings in the area are less than 2½ stories in height. Some departments even provide 35- and 40-foot extension ladders

carried on overhead brackets on pumpers. With the advent of light weight metal ladders this is a practical arrangement in areas where separate ladder truck service is not provided for small fires.

A few fire departments have made the mistake of providing only a 20-foot extension ladder and a 12-foot roof ladder on their pumper and hose trucks. Frequently, this length of ladder comes just short of reaching the eaves of even a comparatively low structure. Cases have occurred where lives were lost because the short extension failed to reach a window where persons were trapped and where ladder trucks arrived too late. In one instance, the fire officer reported that with a 24-foot ladder a rescue could have been effected.

Perhaps the conclusion should be that, while pumper companies should not be expected to perform ladder company functions unnecessarily, ladders should be provided of lengths that will be most serviceable in the area which the apparatus serves. This is particularly important in these times of housing congestion where many attics are serving as improvised living quarters. Pumper company equipment should include ladders that reach to the top floor or attic windows of 2½- and 3-story dwellings or to the eaves of the roof. In some cases, a 24- or 25-foot extension may be acceptable, and, in others, a 28, 30, or even longer extension may be the means of saving lives or effecting speedier extinguishment of fires.

One thing should be certain and that is that the archaic notion, dating from days of horse-drawn apparatus, that engine men would stand waiting in front of a burning building rather than perform ladder duty is not in the public interest. This arose from the fact that it was impossible for horse-drawn teams to carry the diversity of equipment now provided on the modern combination pumping apparatus. Many of the old hose wagons carried rope life nets for emergency rescues in the absence of ladders. Others carried the single spar type pompier or scaling ladder for rescue purposes.

Most experienced fire fighters know that ladder or truck company work is of almost equal importance with the pumper crew in modern fire fighting. A fire department that is deficient in ladder or truck service is like an army

Continued on page 23

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NATIONAL FIRE PROTECTION ASSOCIATION

60 Batterymarch Street, Boston 10, Mass.

PRESIDENT'S CONFERENCE

Recommends Fire Departments Be Fire Prevention as Well as Fire Fighting Agencies

DISTINGUISHED fire department representatives participated May 6–8 in the President's Conference on Fire Prevention in Washington, D. C. They heard President Truman's plea for more effective fire prevention work, heard the report of six conference committees and adopted a program of action to reduce loss of life and property. The Action Program and Committee Reports may be obtained by writing to the President's Conference on Fire Prevention, Room 7006, Federal Works Building, Washington 25, D. C.

Of greatest interest to the fire service will be the report on Fire Fighting Services which was prepared under the direction of a committee of which Major General William J. Donovan, of OSS fame in World War II, was chairman. This committee held well-attended meetings on April 14 and on May 6. As a result, a list of recommendations was compiled, among them the following:

(1) that fire departments be regarded as fire prevention as well as fire fighting agencies;

(2) that ways be explored for meeting increasing fire department costs;

(3) that advantage be taken of new frequencies available for radio services supplemental to wired public alarms;

(4) that in each city there be a fire prevention committee and in larger cities there be a fire department bureau of fire prevention;

(5) that fire departments increase the number of contacts they make with the public through more inspection work and through regular fire prevention campaigns;

(6) that firemen's training be recognized as one measure of an effective fire department;

(7) that training of firemen as a public service occupation through vocational education channels be continued with general commendation of the pattern of existing statewide firemen's training programs;

(8) that public fire services be made available, even in farm and rural areas, through legislation authorizing fire protection districts under which fire departments may be organized;

(9) that a State Rural Fire Protection Committee be set up in each state;

(10) that disaster plans be developed in all areas.

General Donovan was assisted by Horatio Bond, chief engineer of the NFPA, as secretary of the committee and by four assistant secretaries: Chief Wm. Fitzgerald, Seattle, Wash., Fire Department; Chief Henry R. Chase, Miami, Fla., Fire Department; W. A. Ross, consultant, Public Service Occupations, U. S. Office of Education; A. H. Gent, chief engineer, Illinois Inspection Bureau, Chicago.

Members of the Fire Fighting Services Committee included: Chief John Alderson, Los Angeles; John Andrias, Associated Factory Mutual Fire Insurance Companies, New York; M. S. Blake, Bethlehem Steel Corp., Bethlehem, Pa.; Battalion Chief Edward Boatright, Portland, Ore.; Chief R. A. Bogan, Baton Rouge, La.; Director Harold R. Brayton, Texas Firemen's Training School, A. & M. College of Texas; Vice-President William Earl Brower, IAFF, Everett, Wash.; Chief William T. Cawker, Topeka, Kans.; Chief Forester John Coffman, National Park Service, Chicago; Gifford T. Cook, Air Installations USAAF, Washington, D. C.; Charles Cowan, Washington Forest Fire Assn., Seattle, Wash.

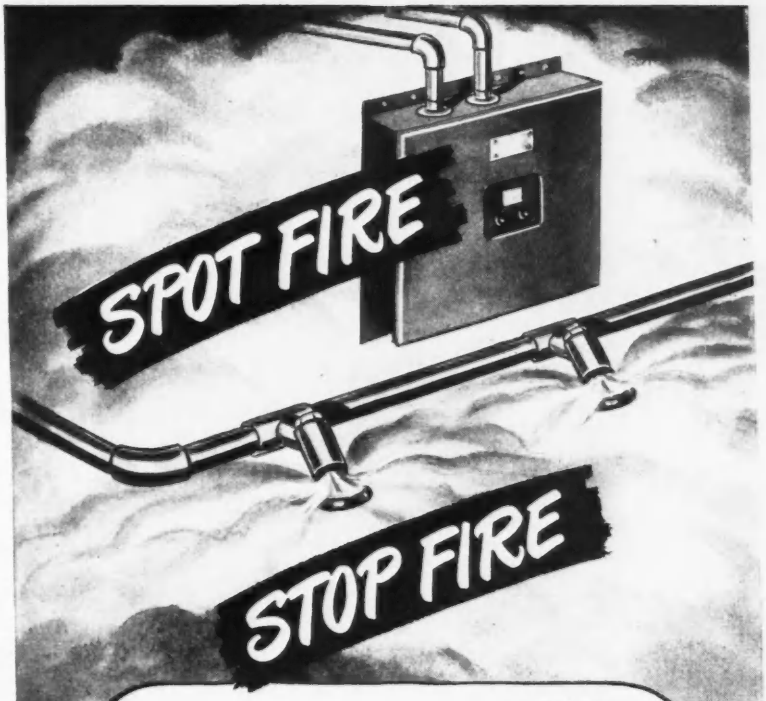
President John P. Crane, Uniformed Firemen's Assn., New York; Chairman J. E. Cryan, Agricultural Committee NFWC, The Farm Underwriters, Chicago; Director of Public Safety Calvin H. Dalby, Norfolk, Va.; James Deach, IAFF, St. Paul, Minn.; W. W. Dean, Fire Prevention Branch, Chief of Engineers, U. S. Army, Washington, D. C.; Chief Frank Egenreither, St. Louis; Colonel Alva L. Fenn, War Department General Staff, Washington, D. C.; Herbert A. Friede, International Municipal Signal Assn., Washington, D. C.; President John F. Gilliams, Camden Fire Insurance Co., Camden, N. J.; David P. Godwin, U. S. Forest Service, Washington, D. C.; Assistant Chief Engineer Clarence Goldsmith, NBFU, Chicago; Mayor W. Cooper Green, Birmingham, Ala.

President W. A. Hebert, Springfield Fire & Marine Insurance Co., Springfield, Mass.; Chief Paul P. Heinz, New Haven, Conn.; Chief Everett Hudiberg, Stillwater, Okla.; State Fire Marshal E. C. Iverson, Lincoln, Nebr.; Mayor Edward J. Jeffries, Jr., Detroit; Director J. W. Just, Fire Service Extension, University of Maryland; L. G. Keeney, Farmers Mutual Reinsurance Co., Grinnell, Iowa; Director of Public Safety John B. Keenan, Newark; Chief Engineer H. L. Krieger, Ohio Inspection Bureau, Columbus; Fiorella LaGuardia, New York; A. M. Lewis, National Automatic Sprinkler & Fire Control Assn., New York; Chief George Lockhart, Minneapolis, Minn.; District Chief F. B. Lucas, Dayton, Ohio.

Deputy Commissioner Leonard C. Lund, Fire Marshal Division, St. Paul, Minn.; Hewson Lynch, New Orleans, La.; Vice President Frank C. McAuliffe, IAFC, Chicago; Chief Grey Marsh, Weston, W. Va.; L. J. Molloy, Seaboard Airline Railway, Norfolk, Va.; Chief Edward N. Montgomery, Fire Prevention Bureau, Boston Fire Department; Chief Anthony J. Mullaney, Chicago; Chief Clement Murphy, Washington, D. C.; Mayor Vincent J. Murphy, Newark; Chief Engineer M. I. Parker, Missouri Inspection Bureau, St. Louis; President F. P. Philbrick, Gamewell Company, Newton Upper Falls, Mass.; Harry Pontious, Ohio Farm Bureau Federation, Columbus; Dr. D. J. Price, Bureau of Agricultural & Industrial Chemistry, USDA, Washington, D. C.

Chief D. P. Rachael, Port Arthur, Tex.; Insurance Manager Walter O. Randlette, Virginia Electric & Power Co., Richmond, Va.; Clarence Ridley, International City Managers Assn., Chicago; Director Theodore A. Rosenwald, New Mexico State College, Albuquerque; Chief O. T. Sanborn, Portland, Me.; H. J. Seagrave, Mine Safety Appliance Co., New York; Dr. H. H. Schrenk, Chief, Health Division, Bureau of Mines, Pittsburgh; Cornelius D. Scully, Pittsburgh; Battalion Chief George T. Slocum, Grand Rapids, Mich.; Edward Spotz, Pennsylvania State Fire School, Harrisburg; Assistant Manager Jay W. Stevens, NBFU, San Francisco; State Fire Marshal John W. Strohm, Des Moines, Iowa; Assistant Chief Engineer George L. Swan, NBFU, New York; Chief Waverly Sykes, Norfolk Naval Shipyard, Portsmouth, Va.; Glen E. Thom, IAFF, Detroit; Chief Ray Tiller, Waterloo, Iowa.

Chief Spence D. Turner, Los Angeles County Fire Department; Director of Conservation E. J. Vanderwall, Madison, Wis.; State Fire Instructor W. M. Walton, University, Ala.; Chief William Wandras, Kearney, N. J.; Thomas S. Ward, California Department of Education, Sacramento; John B. Warden, Harrisburg, Pa.; Vice President C. R. Welborn, Underwriters' Laboratories, Inc., Chicago; President George W. Welsh, U. S. Conference of Mayors, Grand Rapids, Mich.; Chief E. E. Wischer, Milwaukee, Wis.; D. O. Wood, Fire Extinguisher Manufacturers Assn., Dayton, Ohio; Director of Fire F. B. Wornall, Kansas City, Mo.; State Fire Marshal Joe R. Yockers, San Francisco.



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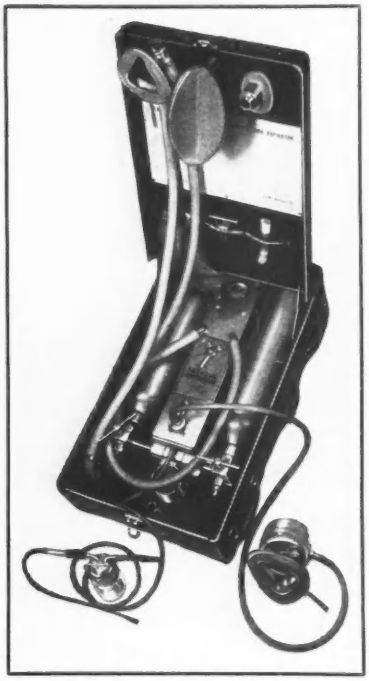

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Florida Fire College Plans Win Approval in Editorial

THE FOLLOWING editorial from the *Florida Firemen*, edited by Chief H. R. Chase, Miami, is worthy of national attention:

"The directors of the Florida State Firemen's Association and the director of the Florida State Fire Chief's Association are to be congratulated on their progressive move in accepting the offer of Ocala for a plot of land for the use of the Florida Fire College.

"These two associations must not stop now in order to bring this college up to a standard that will be hard to beat by the other states who have made such moves. It is very necessary that an all-out effort should be made by these associations to get legislation that will allow the construction of proper buildings for this institution.

"Besides the necessary classrooms, it will be very necessary that a proper building be constructed as a laboratory where fires of different classes can be started and extinguished by the firemen, for it is this method only that will convince many of our boys the proper ways of extinguishing fires in buildings.

"The use of fog is comparatively new to many of the firemen of our state and, at the same time, it is a method of extinguishing fires that many of the oldtimers have not been convinced is the proper method to use. By the use of a laboratory that is properly constructed, it will be as easy to convince the skeptics that fog, as well as fog foam, is a new method that is here to stay.

"It is our opinion that money for classrooms and the laboratory are the most essential at this time, and that money spent on a drill tower will be money practically thrown away, as the modern method of training does not necessitate the use of a drill tower.

"It is hoped that this setup will now allow us to have, in our state college, more of a diversified curriculum. By all means this new setup should include officers' training courses, which will provide a service to the Florida firemen that has been badly neglected.

"We want to suggest to the officers of the Florida State Firemen's Association and the Florida State Fire Chiefs' Association that they immediately make an all-out effort to obtain fire fighting equipment from the government. There are fields full of such equipment and it is our belief that, if enough effort is put behind such a move, we can obtain all the rolling stock, as well as hose, nozzles, fire extinguishers and other such equipment for use in this state school.

"We have been successful in obtaining the services of James P. Britton as our fire college co-ordinator and itinerant teacher. With the equipment that is necessary for such a school, there is no reason why Florida cannot have the finest institution of its kind."

Coming Events

June 2-6—18th Annual South Dakota Fire School, Mitchell.

June 9-11—Missouri Valley Fire Chief's Convention, Omaha, Neb.

June 10-13—Illinois Fire College, University of Illinois, Urbana.

June 14-17—6th Annual Connecticut Fire College, Fort Trumbull, New London.

June 17-19—Michigan Fire College, at the University of Michigan, Ann Arbor.

June 18-20—55th Annual Convention of the Maryland State Firemen's Association, Frostburg.

June 19-21—3rd Annual Utah State Firemen's Training School, Salt Lake City.

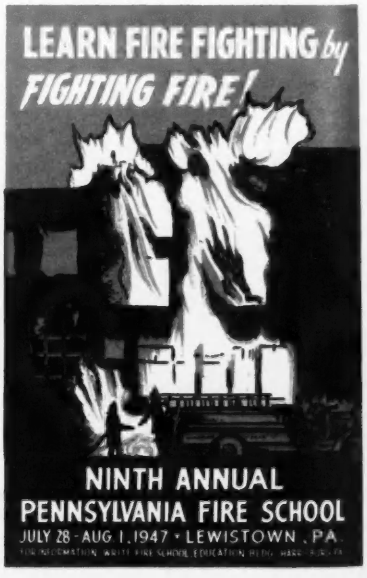
June 19-22—Berks County Firemen's Assoc. Training Forum, Wyomissing, Pa.

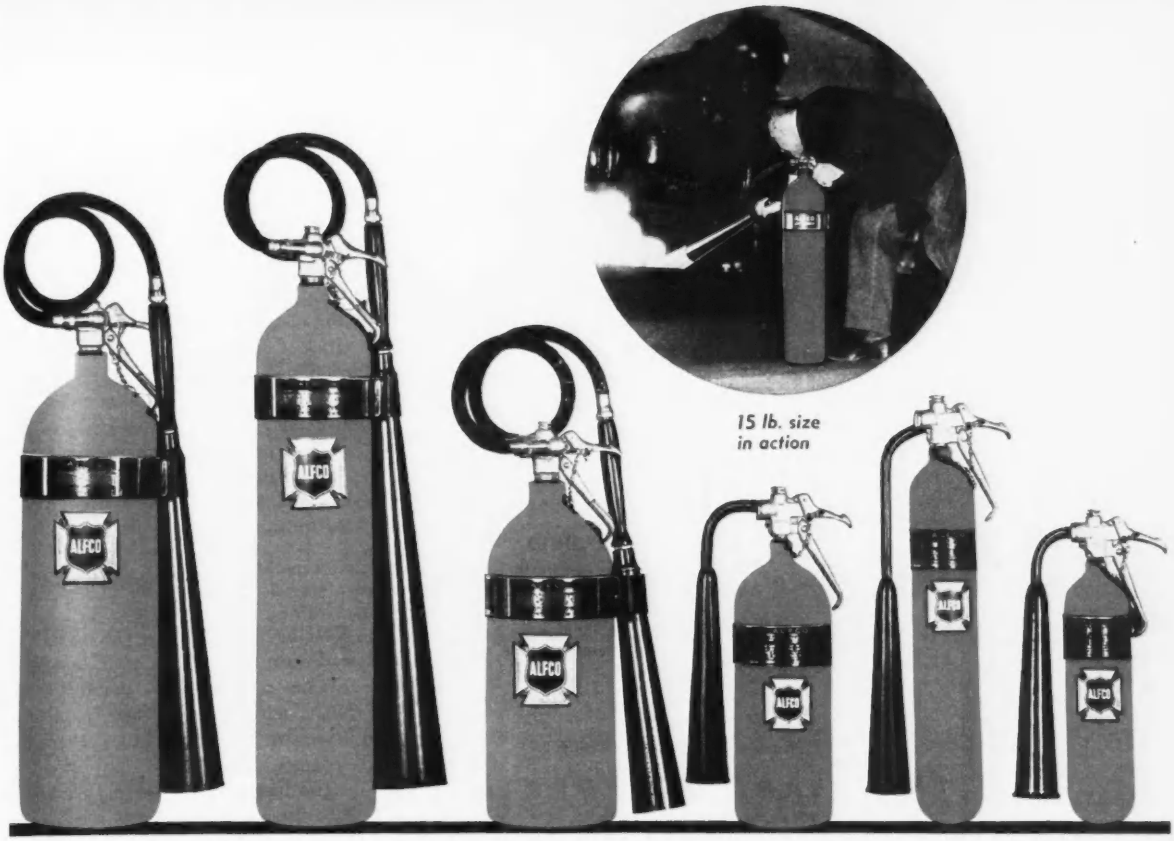
June 26-27—Missouri State Fire Conference, University of Missouri, Columbia.

July 20-25—Texas Firemen's Training School, Texas A & M, College Station.

July 28-31—17th Annual West Virginia Fire School, West Virginia University, Morgantown.

July 28, August 1—9th Annual Pennsylvania Fire School, Lewistown.





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New Texts

MUNICIPAL FIRE DEPARTMENT SERVICE TO AREAS OUTSIDE CORPORATE LIMITS. Issued, as Report No. 54, by the North Carolina League of Municipalities, Raleigh. $1.00.

This report is based on a survey by George O. Franklin, director of the League's Municipal Information Service, of practices in North Carolina cities of over 10,000 population. It is combined with a comprehensive memoranda by Assistant Attorney General James E. Tucker on the legal aspects of the problem. The report gives various methods of making charges for outside protection employed by North Carolina municipalities.

★ ★ ★

FIRE FIGHTING ON SHIPS. Edward W. Reanney, associate member of the British Institution of Fire Engineers and former inspector, Liverpool Fire Brigade. 124 pages, cloth bound.

The drawings are good and there is a good description of type of fires as affected by ship construction and layout, stowage and other practices. The description of methods indicates that conventional fire fighting is destructive to ship and cargo. For a deep-seated cargo fire the author observes that very often the compartment may have to be flooded. Some ships have steam flooding apparatus so the author devotes some attention to those. Steam is less desirable than other inert gas flooding systems and is coming to be replaced with carbon dioxide and other inert gases. During the period of which he writes, these inert gases were not available in quantities sufficient for realizing the most from their use. The latest on fire fighting methods using these gases is still awaited. It may be available when and if the U. S. Coast Guard reports on its ship fire tests run at San Francisco last summer. (See page 9, center column, of the Texas City report.) The author had none of this experience available to him when he wrote.

Orders for the book should be sent direct to the publishers: Brown, Son and Ferguson, Ltd., 52–58 Darnley St., Glasgow, S. 1, Scotland. Price, seven shillings sixpence, net. ($2.00 postpaid to U. S. and Canada. For convenient remittance, use an international money order.)

FIRE PREVENTION EXPERTS
recommend
CENTRAL STATION-SUPERVISED
FIRE DETECTING AND ALARM SYSTEMS

From report of South-Eastern Underwriters Association on Hotel Winecoff fire ▶

Where a modern, trained fire department exists, quick extinguishment of a fire may be expected if notification is given of the fire in its early stage. The installation of an approved *automatic* fire alarm system, transmitting an alarm to the fire department, *preferably through a central supervising company is desirable.*

From report of Cook County Inspection Bureau on Hotel LaSalle fire ▶

The tragic results of this fire were brought about by the absence of means for fire detection and alarm. Every hotel should be provided with an approved alarm system. The prompt transmission of alarms to the fire department can best be secured *by means of Central Station Supervisory Service.*

From report of International Association of Fire Chiefs on fire protection for hotels ▶

Requirements shall include frequent and regular inspection and test of all above mentioned systems. Proper supervision and maintenance of such protective systems are essential to reliable operation, and it shall be required that this procedure and the assurance of prompt transmission of alarms to the fire department can best be obtained by means of *Central Station Supervisory Service* wherever it is available.

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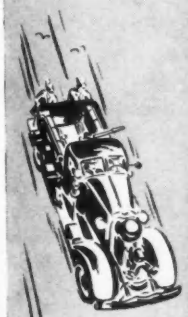

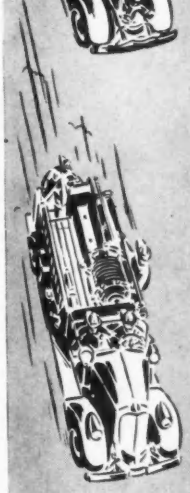

Reports of fire protection experts who investigated the La Salle, Canfield and Winecoff hotel disasters point out that in all these fires the tragically fatal consequences were largely the result of belated discovery or delayed alarm, and stress the importance of fire detecting and alarm systems, *supervised and maintained through a central station agency.*

For hotels and all types of commercial and industrial properties, ADT provides Fire Protection Services including automatic and manual fire alarm systems, installed, supervised, inspected, tested and maintained through ADT Central Stations located in all principal cities of the United States. In more than 350 municipalities these systems are available with Central Station connection; elsewhere they are furnished as local or direct-to-fire department systems with ADT supervision, inspection, test and maintenance service.

Whatever the type of system, ADT provides periodic inspections, systematic tests and complete maintenance by an organization of trained and experienced protection personnel, who provide the specialized attention required to assure proper and effective operation when an emergency arises.

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(2) all fire departments and companies in communities of less than 25,000 population.

(3) all industrial fire brigades.

Member volunteer fire companies receive ten copies of FIREMEN magazine each month, mailed to the homes of individual firemen. Beyond the ten, additional copies of FIREMEN cost $1 per year.

Volunteer Fire Company Section members, receive, at their headquarters, one copy of all publications sent to NFPA associate members.

ASSOCIATE MEMBERSHIP ($10 annual dues) Eligible: Individual fire department officers, firemen, and others interested in fire safety. NFPA associate members in the fire service receive: one copy of FIREMEN magazine monthly, the NFPA **Quarterly,** the monthly **News Letter,** technical standards, popular bulletins and posters.

All associate members have one vote in Association affairs.

New members of the Volunteer Fire Company Section are:

UNITED STATES

Brownville Volunteer Fire Dept., Brownville, Ore
Franklin Fire Dept., Franklin, N. H.
Fruit Hill Fire Co., North Providence, R. I.
Pear Ridge Fire Dept., Port Arthur, Texas
Perkosie Volunteer Fire Co. No. 1, Perkosie, Pa.
Vienna Volunteer Fire Dept., Vienna, Ohio

CANADA

Acton Fire Brigade, Acton, Ont.
Provost Volunteer Fire Dept., Provost, Alta.

About Our Members

THE RADNOR FIRE COMPANY of Wayne, Pa., a new member of the NFPA Volunteer Fire Company Section, was organized in 1906, according to Secretary L. D. Wilkins. The department is commanded by Chief Edwin J. Clark, with assistant chiefs James M. Kane and R. Wells Walker, elected by the firemen for a one-year term. The president is David H. Henderson and there is a membership of 725 men of which 35 are active fire fighters. The company protects a community of 10,000 persons covering an area of 10 square miles, including several industrial establishments.

The fire station contains a bowling alley in the basement and meeting and game room on the second floor. Apparatus on the main floor consists of a 750 gpm triple combination pumper, 600 gpm pump-ladder truck, and two booster trucks — one with 100 gpm and the other with 200 gpm pumps. The department plans to purchase a new 750 gpm pumper. A rescue squad is being formed and an ambulance is on order. The fire department holds weekly drills and has participated in the Pennsylvania State Firemen's Training Program.

The Right Ladder

Continued from page 15

without an engineer corps to prepare the way for the infantry. It may be more than 50 percent deficient in fire fighting efficiency because the hose crews cannot reach the seat of the fire without proper ventilation, ladder service, and forcible entry. Nevertheless, with ladders recognized as one of the fire department's chief means of rescue and outside access, a fire department may look very foolish to the public, not understanding the nice distinctions between pumpers and ladder trucks, if the first apparatus to arrive lacks ladders that will reach the eaves of a 2-story building.

★ ★ ★

Small Stream Equipment

Continued from page 13

and chemical truck serving as a tender for the steam fire engine replaced the separate chemical engine companies and hose wagons. Later the triple combination included a gasoline pumping engine on the hose and chemical truck replacing the separate pumper. A few years later the chemical tank was abandoned in favor of a water tank utilizing the pump on the apparatus to supply the small stream. Thus three separate pieces of apparatus have been replaced by a single piece. In general, this works out satisfactorily, but there are occasions where the pumper is at a distant hydrant making the booster tank unavailable at the fire. In other instances where skirmishers are needed to fight flying brands it is necessary to detach engine companies for this job unless the fire department has been fortunate enough to provide separate tank apparatus which can be used for this work. Of course, tank apparatus can also be used for many other fire fighting jobs such as supplying lines in areas of weak or negligible water supply, and fighting brush, grass or prairie fires.

Unless a fire department has an almost unlimited supply of pumper companies, it would do well to provide a number of auxiliary water tank units with 120 gpm or larger booster pump and 1½-inch hose, to prevent windborne fire from outflanking the big lines at major fires. Where temperatures are below freezing, a film of water spray makes a good protective blanket for combustible portions of exposed buildings.

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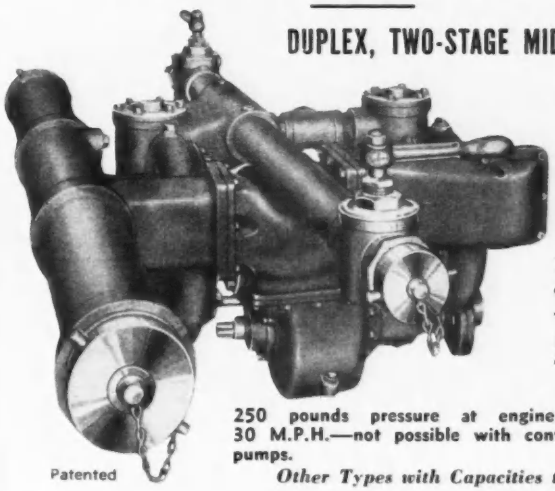
DUPLEX, TWO-STAGE MIDSHIP MOUNTED



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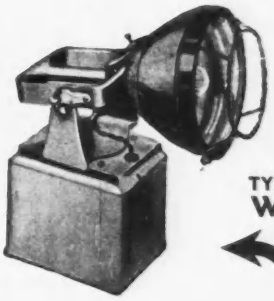

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MANUFACTURERS' ANNOUNCEMENTS

Useful Information on Portable Jet Pumps

A simple, time-saving method of determining the correct type of jet pump for the user's individual requirements is a feature of the new Bulletin No. 315 on portable jet pumps as manufactured by Derbyshire Machine & Tool Company. This bulletin details the manner in which this line of jet pumps, utilizing water under pressure as the pumping medium, is used in the removal, transfer, or mixing of liquids, heavy sludges, process wastes, and fluids containing substances injurious to conventional pumping equipment. Also included are charts and tables to facilitate proper selection over a wide range of conditions. Copies of Catalog No. 315 are available from the Jet Pump Division, Derbyshire Machine & Tool Co., 5267 Belfield Avenue, Philadelphia 44, Pa.

★ ★ ★

New Type Portable Ventilator Announced by Nelson Corp.

A new type, high-capacity, light weight, portable ventilator has been developed by The Herman Nelson Corporation, Moline, Ill., to assist firemen in removal of smoke and noxious gases. The unit consists of a high-capacity fan powered by either a gasoline engine or an electric motor. Mounted on a light weight metal frame equipped with two rubber-tired wheels, it can be easily moved from place to place by one man. Standard equipment includes one 14″ diameter by 16′ length extensible canvas duct for conveying air to desired point. *Two-way air flow* permits dust or gases to be drawn from an area or fresh cooling air to be supplied to the spot desired. Duct is specially treated for flame and moisture resistance. When not in use it can be collapsed into a compact package and fastened with a carrying strap. Maximum air delivery without duct is 4500 cfm, and with duct, 4000 cfm. Descriptive literature is available. Write The Herman Nelson Corporation, Moline, Ill., for form No. 2636.

★ ★ ★

New Carbon Dioxide Hose Reel

A new and improved light weight hose reel of the shock-proof type for carbon dioxide systems, available in capacities from 50 to 200 pounds or more of carbon dioxide, has just been announced by the C-O-TWO Fire Equipment Co., of Newark, N. J. This stamped brass and chrome plated hose reel may be fitted with one-half inch high pressure hose of any length up to 125 feet or any length up to 100 feet of three-quarter inch hose. The hose reel and discharge horn may be installed adjacent to the C-O-TWO cylinders or at a remote point. The handle of the fire fighting nozzle is equipped with the "squeez-grip" valve for controlling discharge of the carbon dioxide gas when working around a fire. For further information, write to the C-O-TWO Fire Equipment Co., P. O. Box 390, Newark 1, N. J.

★ ★ ★

Goodrich Offers New Fire Coat

A fire coat, specially designed to give extra protection against the weather, with a detachable inner snap-on lining of Melton fleece, is announced by The B. F. Goodrich Company, Akron, Ohio. The new garment is an addition to the company's line of fire coats. According to the manufacturer the coat was designed after consultation with fire chiefs and firemen, and has non-binding Raglan shoulders which allow utmost freedom to the wearer, elastic wrist cuffs which fit snugly about the arms and prevent any seepage of water. Other features claimed by the Goodrich Co. are cemented seams on the sleeves and shoulders, vulcanized and strapped with reinforcing rubber and double-riveting at points of greatest strain. Pockets fitted with special drainage arrangements, a short, soft collar which fits snug and tight, and quick-fastening harness straps and dee rings on the fly front.

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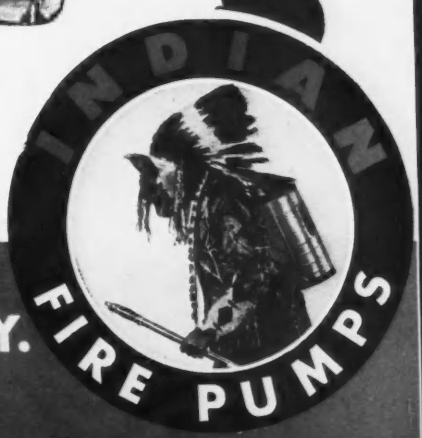

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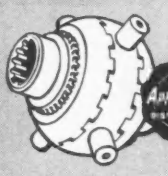

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